

Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A modem, comprising:

a carriergroup receiving means configured [[to]] to receive parameters relating to a plurality of carriers;

a carriergrouping means configured to determine ~~a plurality of carriergroup parameters~~ and at least one dynamically variable size carrier group for the plurality of carriers based on the parameters and a plurality of carriergroup parameters for the at least one dynamically variable size carrier group, at least one of the plurality of carriergroup parameters being a worst case parameter of the plurality of carriers within the at least one dynamically variable size carrier group; and

a carriergroup transmitting means configured to transmit at least one message including the plurality of carriergroup parameters and the at least one dynamically variable size carrier group.

2. (Previously Presented) The modem of claim 1, wherein at least one of the plurality of carriergroup parameters comprises:

a carriergroup signal-to-noise ratio (SNR) parameter for the at least one dynamically variable size carrier group.

3. (Previously Presented) The modem of claim 1, wherein the worst case parameter comprises:

a worst case signal-to-noise ratio (SNR) of the at least one dynamically variable size carrier group.

4. (Previously Presented) The modem of claim 1, wherein at least one of the plurality of carrier group parameters comprises:

a carriergroup bitloading parameter for the at least one dynamically variable size carrier group.

5-6. (Cancelled)

7. (Previously Presented) The modem of claim 1, further comprising:

means for using the at least one message to set up a tone encoder in a far-end modem.

8. (Currently Amended) A method for grouping a plurality of carriers in a DMT communication system, comprising:

determining at least one dynamically variable sized carrier group for the plurality of carriers used for communication in the DMT communication system;

determining a plurality of carriergroup parameters for the at least one dynamically variable sized carrier group, at least one of the plurality of carriergroup parameters being a worst case parameter of the plurality of carriers within the at least one dynamically variable size carrier group;

using the plurality of carriergroup parameters to dynamically set up a tone ~~deeoder~~ encoder; and

sending at least one message using the tone ~~deeoder~~ encoder, the at least one message including the plurality of carriergroup parameters.

9. (Previously Presented) The method of claim 8, wherein the step of determining the plurality of carriergroup parameters for the at least one dynamically variable sized carrier group comprises:

determining a carriergroup signal-to-noise ratio (SNR) for the at least one dynamically variable sized carrier group.

10. (Previously Presented) The method of clam 9, wherein the carriergroup SNR for the at least one carrier group comprises:

a worst case SNR of the plurality of carriers within the at least one dynamically variable sized carrier group.

11. (Previously Presented) The method of claim 8, wherein the step of determining the plurality of carriergroup parameters for the at least one dynamically variable sized carrier group comprises:

determining at least one carriergroup bitloading for the at least one dynamically variable sized carrier group.

12-13. (Cancelled)

14. (Previously Presented) The method of claim 8, further comprising:
setting up a tone encoder in a far end modem using the at least one message.

15. (Currently Amended) A method for grouping a plurality of carriers in a DMT communication system, the DMT communication system including a near end and a far end modem, comprising:

determining at least one dynamically variable sized carrier group from the plurality of carriers used for communication in the DMT communication system;

determining a carriergroup signal-to-noise ratio (SNR) for the at least one dynamically variable sized carrier group;

determining a carriergroup bitloading and a carriergroup gain for the at least one dynamically variable sized carrier group based on the carriergroup SNR;

using the carriergroup bitloading and the carriergroup gain to dynamically set up a tone encoder in the ~~near~~ far end modem; and

using the carriergroup bitloading and the carriergroup gain to transmit messages from the ~~near~~ far end modem to the ~~[[far]]~~ near end modem using the tone encoder.

16. (Previously Presented) The method of claim 15, wherein the carriergroup SNR comprises:

a worst case SNR of the plurality of carriers within the at least one dynamically variable size carrier group.

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17 - 18. (Cancelled)

19. (Previously Presented) The method of claim 15, wherein the communication system is a VDSL system.

20. (Currently Amended) A modem for grouping a plurality of carriers in a DMT communication system coupled to a far-end modem via a transmission channel, comprising:

carriergrouping means configured to determine multiple dynamically variable sized carrier groups for the plurality of carriers and to determine a plurality of carriergroup parameters for each of the multiple carrier groups, at least one of the plurality of carriergroup parameters being a worst case parameter of the plurality of carriers within each of the multiple carrier groups, the carriergrouping means including:

a tone decoder coupled to the transmission channel configured to transmit the messages, the tone decoder being dynamically set up based upon the plurality of carriergroup parameters; and

carriergroup transmitting means configured to transmit messages including the plurality of carriergroup parameters to the far-end modem via the transmission channel to enable the far-end modem to send and receive messages using the multiple carrier ~~groups.~~ groups, the carriergroup transmitting means including:

~~a tone encoder coupled to the transmission channel configured to transmit the messages, the tone decoder being dynamically set up based upon the plurality of carriergroup parameters.~~

21. (Previously Presented) The modem of claim 20, wherein the plurality of carriergroup parameters comprises:

a signal-to-noise ratio (SNR).

22. (Previously Presented) The modem of claim 20, wherein the plurality of carriergroup parameters for each of the multiple carrier groups comprises:

a worst case signal-to-noise ratio (SNR) for each of the multiple carrier groups.

23. (Previously Presented) The modem of claim 20, wherein the plurality of carriergroup parameters comprises:

a carriergroup bitloading parameter for each of the multiple carrier groups.

24 - 25. (Cancelled)

26. (Previously Presented) The modem of claim 20, wherein the messages are used to set up a tone encoder in the far-end modem coupled to the transmission channel.

27. (Cancelled)

28. (Previously Presented) The method of claim 1, wherein the plurality of carriergroup parameters comprises a carriergroup gain parameter.

29. (Previously Presented) The method of claim 1, further comprising:
setting up a tone encoder using the plurality of carriergroup parameters.

30. (Previously Presented) The method of claim 8, wherein the
plurality of carriergroup parameters comprises a carriergroup gain parameter.

31. (Currently Amended) The method of claim 20, wherein the plurality of
carriergroup parameters comprises a carriergroup gain parameter.